Abstract: In her thesis, Karen Smith showed that a singularity in characteristic zero is rational provided its 'reduction' to a prime which is 'large enough' is F-rational. Astonishingly, using recent advances in mixed characteristic commutative algebra, Ma and Schwede show that the former is true for *any* prime p. Apart from being of independent interest, this has substantial algorithmic consequences to determine whether a char 0 singularity is rational.

We will isolate the part of the above proposition which requires ‘perfectoid theory’ and study their general ‘spreading out’ technique which has its roots in a first course in algebraic geometry.